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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/630,955	08/02/2000	Bryan J. Donoghue	922-99	8131

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EXAMINER

SHAH, CHIRAG G

ART UNIT PAPER NUMBER

2664

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/630,955

Applicant(s)

DONOGHUE, BRYAN J.

Examiner

Chirag G Shah

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-24 is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Simmon et al. (U.S. Patent No. 6,084,856) in view of Itkowsky et al (U.S. Patent No. 6,295,281).

Referring to claim 1, Simmons et al discloses in figures 2 and 4 and respective portions of the specification of a network device (multiport switch 12) which includes means for receiving data packets over a link (receive a data frame according to Ethernet protocol over a receiving port 300), a memory for the packets (buffer memory interface), and a means for providing an indication that the occupancy of the memory is less than a first watermark as disclosed in figure 4 and column 12, lines 35-66 (the receiving port operates in full-duplex, whenever the number of available buffers in the free buffer pool 104 falls below the high watermark, the medium watermark or the low watermark, the multiport switch completes any current transmission in progress and causes the receiving port 300 to transmit a PAUSE frame carrying a short , medium or long PAUSE interval). Simmon et al fails to disclose the means responsive to said indication for providing a sequence of pause frames wherein said pause frames in the sequence define for a source of said packets alternating periods in which sending of packets on the link is alternately allowed and prevented. Itkowsky et al teaches of flow control

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for Ethernet full duplex-buffered repeater. Itkowsky et al discloses in column 4, lines 39-61 that a GMAC 12 (gigabit media access controller, which controls the receipt and transmission of packet through the associated port and link for each of plural ports) implements full-duplex flow control according to the IEEE802.3x standard and further discloses that flow control may be implemented with an XON/OFF type protocol by alternatively transmitting pause frames with very large pause times and then pause times of zero, since the count time from the new pause frame supersedes that of the old pause frame. Therefore, it would have been obvious to one of ordinary skills in the art to modify the teachings of Simmon et al to include the teachings with respect to sending of packets on the link in alternating periods as taught by Itkowsky et al in order to be able to accommodate high-rate Ethernet traffic without incurring packet loss or congestion over a given interval.

Referring to claims 2, Simmons et al discloses in column 12, lines 35 to 54 of each full duplex receiving port 300 outputting a PAUSE frame carrying the respective pause interval. Simmons et al fails to disclose wherein said pause frames consist of an alternating sequence of XOFF frames defining a very long cessation of the sending of packets and XON frames defining substantially zero cessation of the sending of packets. Itkowsky et al teaches of flow control for Ethernet full duplex-buffered repeater. Itkowsky et al discloses in column 4, lines 39-61 that a GMAC 12 (gigabit media access controller, which controls the receipt and transmission of packet through the associated port and link for each of plural ports) implements full-duplex flow control according to the IEEE802.3x standard and further discloses that flow control may be implemented with an XON/OFF type protocol by alternatively transmitting pause frames with very large pause times and then pause times of zero, since the count time from the new pause

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frame supersedes that of the old pause frame. Therefore, it would have been obvious to one of ordinary skills in the art to modify the teachings of Simmon et al to include the teachings with respect to sending of packets on the link in alternating periods as taught by Itkowsky et al in order to be able to accommodate high-rate Ethernet traffic without incurring packet loss or congestion over a given interval.

Referring to claim 3, Simmons et al discloses in figure 2 of a network device (multiport switch 12) according to claim 1 wherein said means for providing said pause frames (as disclosed in column 12, lines 35-67) is responsive to the increase of the occupancy of the memory (buffer) above a selected watermark (high 300e, medium 300d or low watermark 300c) to cease the provision of pause frames (if multiport switch 12 encounters server incoming traffic causing the free buffer pool 104 to fall below the high watermark, the medium watermark and the low watermark, the each full duplex receiving port 300 will output a PAUSE frame carrying the respective pause interval) as claim.

Referring to claims 4 and 7, Simmons et al network device (multiport switch 12 of figure 2) according to claim 3 wherein the aforementioned watermarks are the same as disclosed in column 12, lines 10-16 as claim.

Referring to claims 5 and 8, Simmons et al discloses network device (multiport switch 12 of figure 2) wherein the means for providing pause frames (as disclosed in column 12, lines 35-67) is responsive to an indication that the occupancy of the memory is above a second watermark (medium watermark 300d) to send the pause frame prescribing cessation of the sending of packets on the link by the source (if multiport switch 12 encounters server incoming traffic

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causing the free buffer pool 104 to fall below the medium watermark, the each full duplex receiving port 300 will output a PAUSE frame carrying the respective pause interval) as claim.

Referring to claim 6, Simmon et al discloses in figures 2 and 4 and respective portions of the specification of a network device (multiport switch 12) which includes means for receiving data packets over a link (receive a data frame according to Ethernet protocol over a receiving port 300), a memory for the packets (buffer memory interface), and a means for providing an indication that the occupancy of the memory is less than a first watermark (high, medium or low watermark) as disclosed in figure 4 and column 12, lines 35-66 (the receiving port operates in full-duplex, whenever the number of available buffers in the free buffer pool 104 falls below the high watermark, the medium watermark or the low watermark, the multiport switch completes any current transmission in progress and causes the receiving port 300 to transmit a PAUSE frame carrying a short , medium or long PAUSE interval). Simmons et al fails to disclose the means responsive to said indication for providing a sequence of pause frames comprising an alternating sequence of XOFF frames defining a very long cessation of the sending of packets and XON frames defining substantially zero cessation of the sending of packets wherein said means for providing said pause frames is responsive to the increase of the occupancy of the memory above a selected watermark to cease the provision of said sequence of pause frames.

Itkowsky et al teaches of flow control for Ethernet full duplex-buffered repeater. Itkowsky et al discloses in column 4, lines 39-61 that a GMAC 12 (gigabit media access controller, which controls the receipt and transmission of packet through the associated port and link for each of plural ports) implements full-duplex flow control according to the IEEE802.3x standard and further discloses that flow control may be implemented with an XON/OFF type protocol by

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alternatively transmitting pause frames with very large pause times and then pause times of zero, since the count time from the new pause frame supersedes that of the old pause frame.

Therefore, it would have been obvious to one of ordinary skills in the art to modify the teachings of Simmon et al to include the teachings with respect to sending of packets on the link in alternating periods as taught by Itkowsky et al in order to be able to accommodate high-rate Ethernet traffic without incurring packet loss or congestion over a given interval.

Allowable Subject Matter

3. Claims 9-24 allowed.

Response to Arguments

4. Applicant's arguments, see page 12, last paragraph to page 13, 2nd paragraph and page 14, 2nd paragraph, filed 3/11/04, with respect to the rejection(s) of claim(s) 1 and 6 under 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Simmon et al. (U.S. Patent No. 6,084,856) in view of Itkowsky et al (U.S. Patent No. 6,295,281).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Or faxed to:

(703)305-3988, (for formal communications intended for entry)

Or:

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(703)305-3988 (for informal or draft communications, please label "Proposed" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag G Shah whose telephone number is 703-305-5639. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 703-305-4366. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cgs
May 24, 2004


Ajit Patel
Primary Examiner